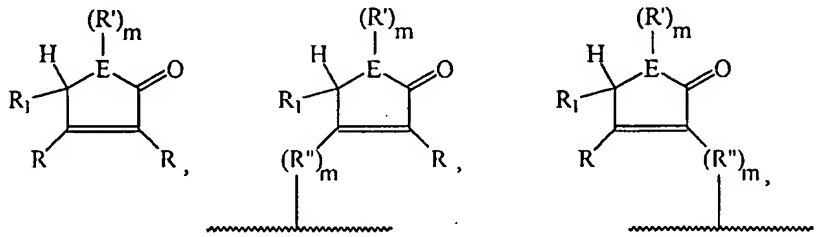
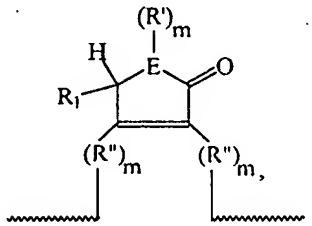
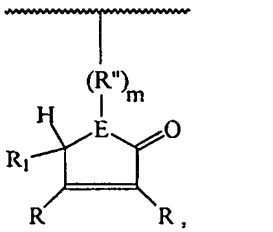
Claims

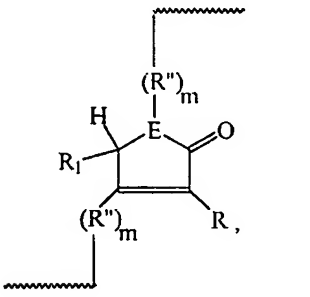
[c1]

A method of inhibiting the oxidation of a polymer comprising adding to a polymer about 0.005 to about 10 phr of an antioxidant having the general formula

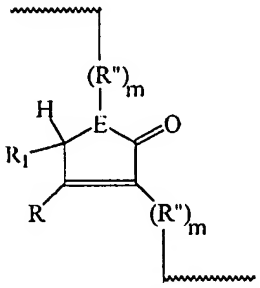








or



where said polymer is selected from the group consisting of poly(vinylchloride), polycarbonates, polyethers, polyethylene, polypropylene, and mixtures thereof when said antioxidant is not phthalide and is selected from the group consisting of poly(vinylchloride), polycarbonates, polyethers, and mixtures thereof when said antioxidant is phthalide, and where E is O, S, or N, R_1 is H, R', OR', SR', $OP(R')_2$, or COR', each R is independently selecte from R_1, alkylenyl from C_1 to C_{12}, aminoalkyl from C_1 to C_{12}, and hydroxyalkyl from $_1$ to C_{12}, R' is alkyl from C_1 to C_{12} or aryl, alkylaryl, or aralkyl from C_6 to C_{12}, R" is G, GO, GS, GNH, NHG, NHGO, NHGNH, NHGS, OG, OGO, OGNH, OGS, SGO, SGNH, or SGS, G is alkylenyl from C_1 to C_{12}, arylenyl from C_6 to C_{12}, alkylarylenyl from C_7 to C_{12}, or arylalkylenyl from C_7 to C_{12}, m is 0 if E is O or S and is 1 if E is N, and two R groups can join to form an alicyclic ring or an aromatic ring or an R group and an R_1 group can join to form an alicyclic ring.

[c2] A method according to Claim 1 wherein E is O.

[c3] A method according to Claim 1 wherein R is OR'.

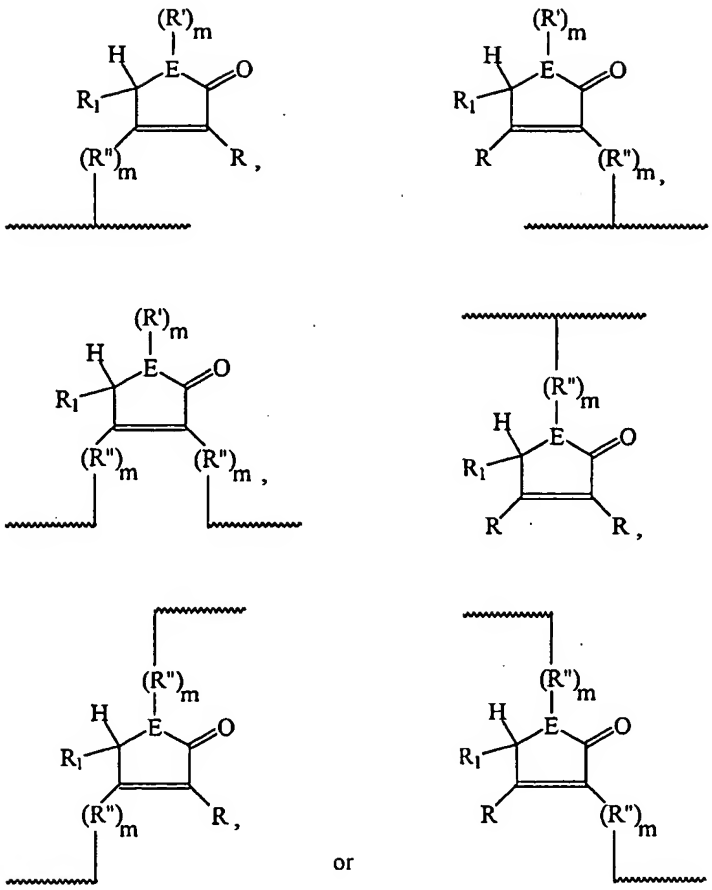
[c4] A method according to Claim 1 wherein two R groups join to form an aromatic ring.

[c5] A method according to Claim 1 wherein E is N and R' is alkyl from C_1 to C_{12}.

[c6] A method according to Claim 1 wherein R_1 is H.

[c7]

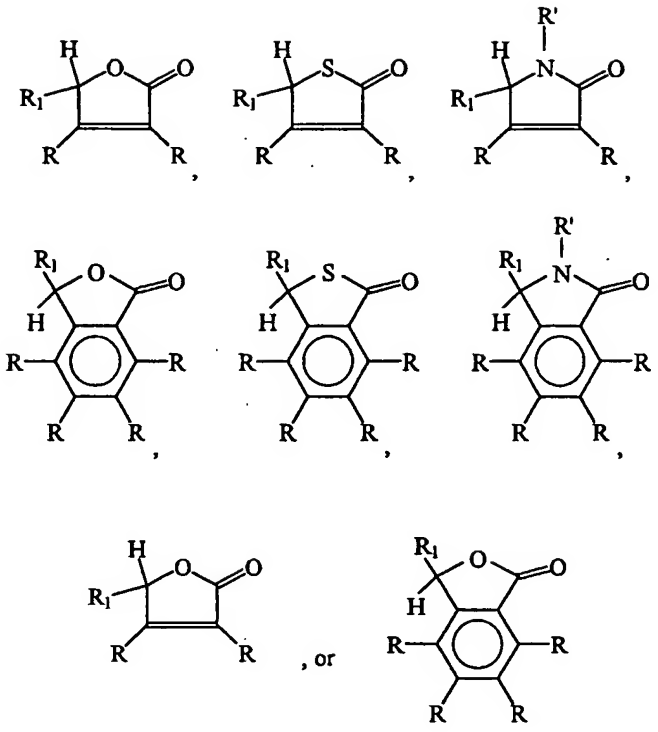
A method according to Claim 1 wherein said antioxidant has the general formula



or

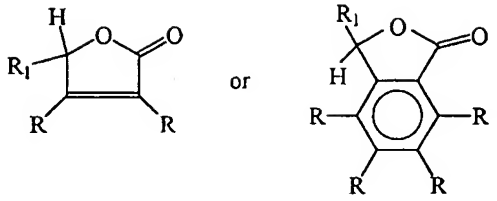
[c8]

A method according to Claim 1 wherein said antioxidant is



[c9]

A method according to Claim 8 wherein said antioxidant has the formula



[c10] A method according to Claim 9 wherein R is OR' and R_1 is H.

[c11] A method according to Claim 1 wherein said polymer is selected from the group

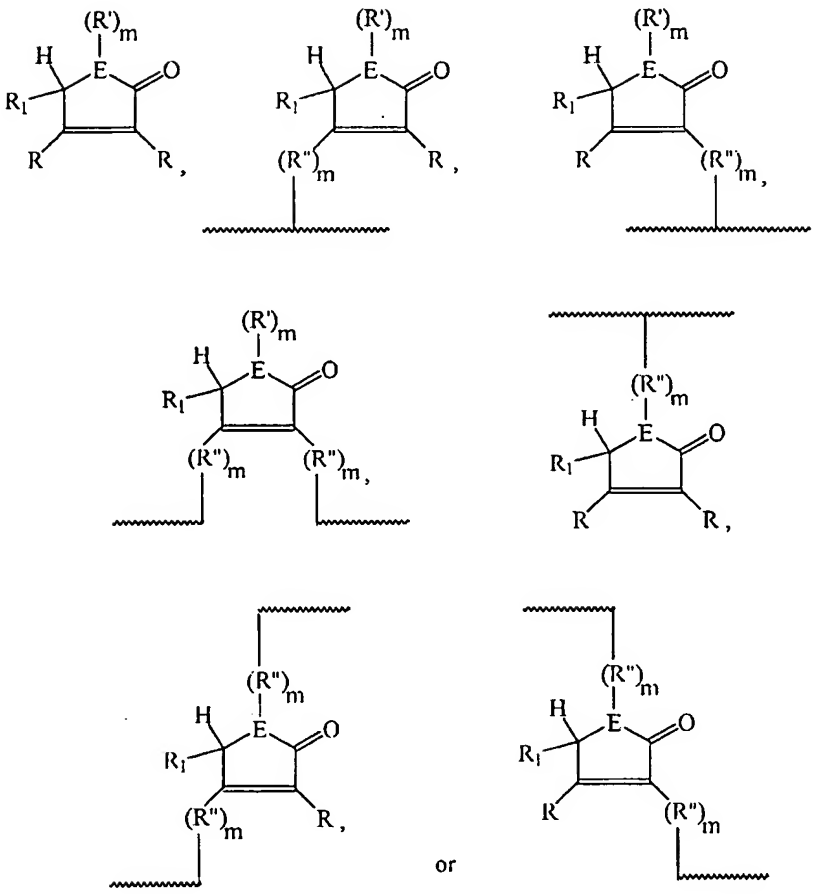
consisting of poly(vinylchloride), polyethylene, polypropylene, polycarbonates, and mixtures thereof.

[c12] A method according to Claim 1 wherein said antioxidant is added during the polymerization of said polymer.

[c13] A method according to Claim 1 wherein said antioxidant is added during compounding said polymer.

[c14]

A method of inhibiting the oxidation of a polymer comprising adding to a polymer selected from the group consisting of poly(vinylchloride), polycarbonates, polyethers, and mixtures thereof, about 0.005 to about 10 phr of an antioxidant having the general formula



where each R is independently selected from H or OR', and R' is alkyl from C_1 to C_{12}, R_1 H, R" is G and, when E is N, R' is alkyl from C_1 to C_{12}.

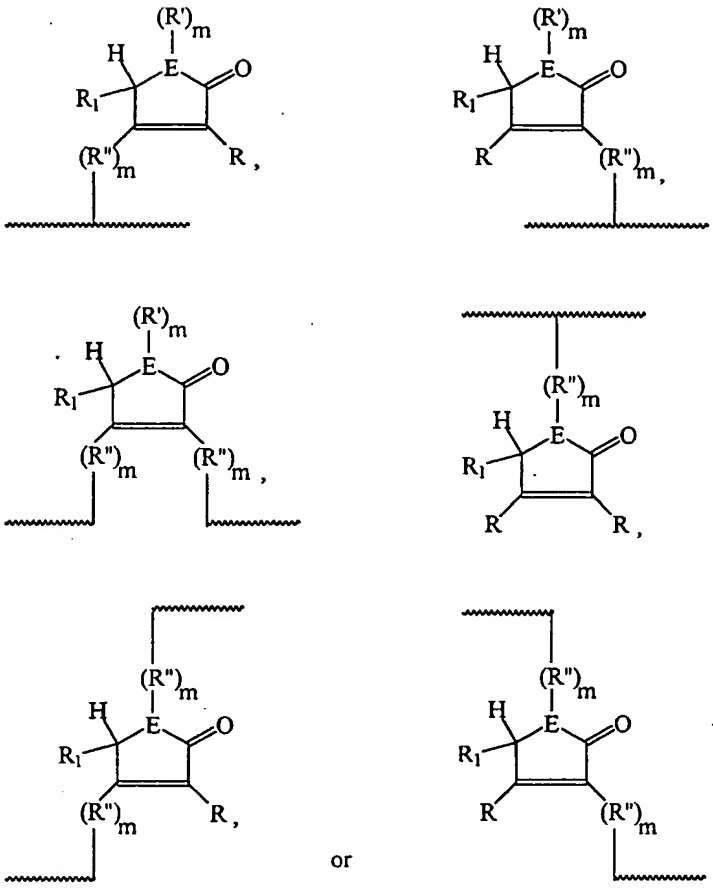
[c15] A method according to Claim 14 wherein said polymer is selected from the

group consisting of poly(vinylchloride), polycarbonates, and mixtures thereof.

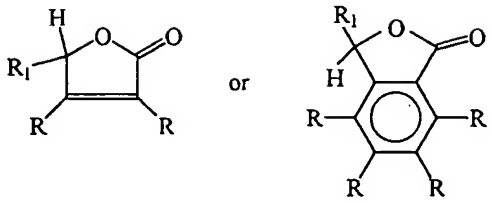
[c16] A method according to Claim 14 wherein R is H.

[c17]

A method according to Claim 14 wherein said antioxidant has the general formula



[c18] A method of inhibiting the oxidation of a polymer adding to a polymer selected from the group consisting of poly(vinylchloride), polycarbonates, polyethers, and mixtures thereof, during compounding about 0.2 to about 5 phr of an antioxidant having the general formul



where each R is independently selected from H or OR' and R' is alkyl from C_1 to C_{12}.

[c19] A method according to Claim 18 wherein R is H.

[c20] A method according to Claim 18 wherein R is OR'.